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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
KWON, BRIAN YONG S	
ART UNIT	**PAPER NUMBER**
1614	

DATE MAILED: 10/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	**Application No.** 10/684,151	**Applicant(s)** SEGALL ET AL.
	Examiner Brian S. Kwon	**Art Unit** 1614

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 July 2006* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *31-37 and 39-51* is/are pending in the application.

4a) Of the above claim(s) _ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *31-37 and 39-51* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Status of Application

1. By Amendment filed 07/20/06, claims 31-37 and 39-40 have been amended, claims 21-30 and 38 have been cancelled and claims 41-51 have been newly added.

2. The rejection of claims 31-40 under 35 USC 112, 1st paragraph, is not maintained in light of the amendment.

3. The rejection of claims 31-40 on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 9 of U.S. Patent No. US 6680305, claims 1-12 of U.S. Patent No. 6284452, claims 13-15 of U. S. Patent No. 5407428, claims 21 of U.S. No. 6300322 and claims 1-11 or U.S. No. 6991624 is not maintained in light of the Approved Terminal Disclaimer filed July 20, 2006.

4. Applicant's arguments with respect to claims 31-40 have been considered but are moot in view of the new ground(s) of rejection.

Claim Objections

5. Claims 36 and 37 are objected to because there are no antecedent basis for the term "clearance rates differ by about 2 fold" and "said first oncotic agent has a clearance rate of 2 to 3 hours and said second onctoic agent has a clearance rate of 6 hours" in the specification.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 32-37, 39-41, 46-47 and 49 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 41 recites the limitation “first oncotic agent" in claim 31. There is insufficient antecedent basis for this limitation in the claim. Claims 32-37 and 39-40 are rejected because they are depending on the rejected claim 41.

The term “at a normal temperature” or “below normal temperature” in claims 46-47 is a relative term which renders the claim indefinite. The term "at a normal temperature" or “below normal temperature’ is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

The term “high concentration glucose” in claim 49 is a relative term which renders the claim indefinite. The term "high concentration glucose" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. Claims 31-37 and 39-51 are rejected under 35 USC 103(a) as being unpatentable over either Segall et al. (WO 92/18136) in view of Irikura et al. (US 3937821), and further in view of Altura et al. ("Ca2+ coupling in vascular smooth muscle: Mg2+ and buffer effects on contractility and membrane Ca2+ movements", Canadian Journal of Physiology and Pharmacology, 1982, 60(4) 459-82),

The amended claims now read on a method of administering a composition comprising a physiologically acceptable aqueous solution comprising electrolytes, a dynamic buffering system such as a carboxylic acid, salt or ester thereof and an oncotic agent such hydroxethyl starch or dextran, further wherein said solution does not comprise a biological buffer, to a patient in a hyperbaric oxygen chamber (claims 31-37 and 39-41) or replacing a subject's circulating blood volume with said composition (claims 42-51) Further limitations include "said first and second oncotic agents have different molecular weight" (claim 32); "said first oncotic agent is a low to medium molecular weight onctoic agent and said second oncotic agent is a high molecular weight oncotic agent" (claim 33); "said first and second oncotic agent are polysaccharides" (claim 34); "hydroxethyl starches" (claim 35); "clearance rates differ by about 2 fold" (claim 36); "said first oncotic agent has a clearance rate of 2 to 3 hours and said second oncotic agent has a clearance rate of 6 hours" (claim 37); "carboxylic acid, salt, or ester thereof is selected from the group consisting of lactate, acetate, gluconate, citrate and pyruvate" (claims 39 and 50); "said dynamic buffering system further comprises bicarbonate" (claim 40); "a second onctoic agent whrein said second oncotic agent is a hydroxyethyl starch or dextran and wherein said first oncotic agent and second oncotic agent have differential clearing rates" (claim 41); "said subject is in a pressurized atmosphere of increased oxygen concentration, wherein said oxygen concentration is greater than 20 % oxygen" (claim 43); "said oxygen concentration is 100%

oxygen" (claim 44); "said subject is in a hyperbaric chamber at hyperbaric pressures of about 0.07 to about 2 atmospheres over ambient pressure" (claim 45); "said subject's body temperature is maintained at a normal temperature" (claim 46); "said subject's body temperature is chilled to below normal temperature" (claim 47); "at least one cardioplegic agent, whererin said cardioplegic agent is lidocaine, procaine or novocaine" (claim 48); "said solution is augmented by adding an adduct and wherein said adduct is propanediol or high concentration glucose" (claim 49); and "said electrolytes comprises Na+, Cl-, Ca++, K+ and Mg++" (claim 51).

Segall (WO 92/18136) teaches a blood substitute composition comprising electrolytes (e.g., sodium, magnesium, chloride, calcium, potassium), glucose, carboxylic acid salt (e.g., sodium gluconate), two or more oncotic agents (e.g., high molecular hydroxyethyl starch, low molecular hydrxyethyl starch, dextran 40 and dextran 70) and biological buffer (e.g., TRIS, HEPES, TES, MOPS, TAPSO, EPPS). See page 8, line 15 thru page 20, line 32, Examples and Claims. The reference also teaches (i) the use of mixtures of carboxylic acid salt (e.g., sodium citrate, sodium gluconate, sodium pyruvate, sodium succinate, sodium bicarbonate and sodium lactate) in said composition (page 7, line 31 thru page 10, line 11); (ii) the use of simple hexose sugar (e.g., glucose, fructose and galactose) in the range of upto about 50nM, preferably in the range between 2 mM and 10mM (page 10, lines 9-24); (iii) the method of perfusing a subject prepared for circulatory perfusion (claim 41 and 45) whereby positioning said patient in a hyperbaric oxygen chamber at normal body temperatures and hyperbaric pressures of about 0.07 to about 2 atmospheres over ambient pressure (page 13, lines 13-16; page 16, lines 23-31; page 17, lines 7-11; Examples 4 and 7); (iv) the administration of said solution intravenously or intraarterially to an euthermic subject which is placed in a pressurized atmosphere of increased oxygen concentration exceeding 30%, preferably 50% or above up to 100% oxygen or to such a subject undergoing a procedure during which the subject's body temperature is reduced significantly below the subjects normal temperature (page 13, line 13 thru page 14, line 1; page 16, lines 23-31); (v) the administration of cardioplegic agents such as lidocaine, procaine and novocaine (page 14, lines 1-18); and the addition of adducts such as propanediol or between 0.6M to about 1.4M concentration of glucose to the solution (page 18, line 23 thru page 19, line 19).

Irikura teaches an aqueous-substitute solution which comprises one of various water-soluble hydroxyehtyl starches (having various degrees of substitutions, respectively) therein, wherein the solution does not include a biological buffer, comprises sodium lactate, as well as sodium chloride, potassium chloride, calcium chloride dehydrate and glucose (see entire documents, particularly Figures, Abstracts, Examples and Claims).

Altura teaches or suggests the disadvantage of using conventional buffers (e.g., TRIS, HEPES, MOPS, PIPES and bicine) in physiological solution because they can exert adverse effects on contractility and reactivity of certain arterial and venous smooth muscles.

The claimed invention differs from the references (Segall WO 92/18136) in the exclusion of conventional buffer and plurality of oncotic agents having differential clearance rates. To incorporate such teaching into the teaching of Segall (WO 92/18136), would have been obvious in view of Irikura who teaches an aqueous-substitute solution which comprises one of various water-soluble hydroxyehtyl starches, wherein the solution does not include a biological buffer, comprises sodium lactate, as well as sodium chloride, potassium chloride, calcium chloride dehydrate and glucose and further in view of Altura who teaches or suggests the disadvantage of using the conventional buffers in physiological solution.

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to prepare blood substitute containing electrolytes, carboxylic acids such as hydroxyethyl starches or dextrans (having different clearance rates) without the presence of biological buffer and arrive at the claimed method in light of the cited references in combination. One having ordinary skill in the art would have been motivated to modify the teaching of Segall (WO 92/18136) such that the adverse effects associated with the use of conventional buffer such as TRIS, HEPES, MOPS and PIPES in said composition would be greatly eliminated. One would have been motivated to combine these references and make the modification because they are drawn to same technical fields (constituted with same ingredients and share common utilities), and pertinent to the problem which applicant concerns about. MPEP 2141.01(a).

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman,* 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

8. Claims 31-37, 39-40, 41-44, 46-47 and 51 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 9 and 17 of USP 6,627,393 since the claims, if allowed, would improperly extend the "right to exclude" already granted in the patent.

Although the conflicting claims are not identical, they are not patentably distinct from each other because the instantly required "positioning said subject in a hyperbaric oxygen chamber" and plurality of oncotic agents having differential clearing rates would have been obvious to a person of the ordinary skill in the art as reasoned below.

Both of the instant application and the patent are directed to the using of same active and inactive ingredients in a composition, wherein said composition is administered to patients (via oxygenators and hypothermic perfusion) intended for the same ultimate purpose. The claimed high molecular weight hetastarch (molecular weight 300,000-1,000,0000) and dextran 70 having intravscualr persistence rates of 6 hours or low molecular weight hetastarch (molecular weight 40,000-200,0000) and dextran having intravascular persistence rates of 2-3 hours are disclosed in the prior art references. It is obvious to combine two compositions each of which is taught by prior art to be useful for same purpose; idea of combining them flows logically from their having been individually taught in the prior art. The combination of active ingredient with the same character is merely the additive effect of each individual component. One having ordinary skill in the art at the time of the invention was made would have been motivated to combine these references and make the modification because they are drawn to same technical fields (constituted with same ingredients and share common utilities), and pertinent to the problem which applicant concerns about. MPEP 2141.01(a).

Conclusion

9. No Claim is allowed.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian Kwon whose telephone number is (571) 272-0581. The examiner can normally be reached Tuesday through Friday from 9:00 am to 7:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ardin Marschel, can be reached on (571) 272-0718. The fax number for this Group is (571) 273-8300.

Any inquiry of a general nature of relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (571) 272-1600.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications may be obtained from Private PAIR only. For more information about PAIR system, see http://pair-direct.uspto.gov Should you have any questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll free).

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